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flight. Long Island Sound must have been distinctly visible from the greater elevation, and from the lower only the Quinnipiac River and Marshes, and possibly New Haven harbor, and all at the greater height were flying west, and those at the lower, north. Interesting in this connection was the change in direction of flight from south to west observed in the Tree Swallows on Oct. 22, 1904, as the reed-beds on the Quinnipiac Marshes, where they had probably spent the previous night, are almost directly north, and the Sound would not have been visible until they reached the height of the hill.

To my mind the only explanation of the direction of flight so invariably noticed is that the birds flying west were guiding themselves by the coast line, and that those flying north, which includes most of the smaller species, had been deflected from their course by New Haven harbor. This they must have seen while flying west near the coast at a low elevation, turned north to avoid it, and followed up the valley east of the trap ridge, which led them to my post of observation.

SUMMER BIRDS OF MOUNT PINOS, CALIFORNIA.

BY JOSEPH GRINNELL.

THE western portion of Ventura County, southern California, is occupied by an extensive mass of mountains fairly well marked off from other systems by intervening low divides. This mountain mass consists of irregularly arranged peaks and ridges interspersed with elevated valleys. Several of the latter are of large enough extent to warrant farming operations in wet years, but the sparse population is mainly centered around the Borax Mines. The highest peak of the group, Mount Pinos, is 8826 feet above sea level, according to the topographic map of the region recently issued by the U. S. Geological Survey. This peak, or rather, ridge, rises from a plateau of surrounding valleys themselves 5000 to 6000 feet in elevation, so that from wherever viewed, it does

not distinguish itself by conspicuous height. Mount Pinos is nearest the northern edge of this mountain system; in fact, the boundary line between Ventura and Kern Counties passes east and west over the summit.

From the summit an impressive view is obtainable interruptedly between the uneven saw-teeth of surrounding mountains: — to the north the southern San Joaquin Valley, with the Sierra Nevada range beyond; to the northeast the Tehachapi Mountains rising beyond Tejon Pass; to the eastward broad sand wastes of the Mojave Desert; on the southeast and south, a sea of mountains, the furthestmost on the horizon being the Sierra San Gabriel; an extremely precipitous tumble of mountains almost hides the ocean to the southwestward, but here and there bits of silver show its location 35 miles away; and to the west and northwest the low coast ranges fade away in the hazy distance.

On account of the comparative isolation, and especially the position of Mount Pinos in relation to the other mountain systems of California, I had long planned to visit it. For Mount Pinos lies at the convergence of three distinct lines of mountains, the coast range of central California, the Sierra Nevadas, which swing to the westward around the southern end of the San Joaquin Valley, and the Southern Sierras (San Gabriel and San Bernardino ranges). Yet it is constricted from the latter two, which are much higher than the coast range to the northward, by low divides. Faunally, as the material beyond enumerated demonstrates, the affinities of Mount Pinos and vicinity are with the Southern Sierras and San Diegan District, it thus marking the extreme northwestward extension of those faunal areas as far as now known to me.

On June 17, 1904, I left Pasadena by wagon to work over the Mount Pinos region for mammals, birds, and reptiles. Mr. Joseph Dixon, Assistant in Zoölogy at Throop Polytechnic Institute, accompanied me as field assistant. After a few days' loitering in the tree-yucca belt of Antelope Valley (the westward arm of the Mojave Desert), we entered the objective region from the east by the way of Tejon Pass and Cuddy Cañon, following the well-travelled road to the Borax Mines at the east base of Mount Pinos proper. We pulled up as high as we could, making perma-

nent camp at about 6500 feet altitude in Seymour Creek Cañon above the sawmill. This was our base camp while in the region, and from here we were within one to three hours tramp of all parts of the main mountain.

Owing to the excessive aridity of the region, perhaps accounted for by the ocean air-currents being cut off by intervening mountain ranges, the vegetation of the plateau region immediately surrounding Mount Pinos has a decidedly Great Basin aspect. The hills and lower mountain ridges up to about 6000 feet are abundantly clothed with piñon trees (*Pinus monophylla*) which seldom reach a height greater than 35 feet, and average over most of the region not more than 20 feet. The valleys are covered with sage (*Artemisia tridentata* and *Chrysothamnus mohavensis*) which lends a vivid similarity to the real desert. From 6000 feet up, the mountain itself is clothed with a generous growth of timber trees. For an interval up to 7000 feet on south slopes there is considerable brush consisting of a scrubby form of golden oak (*Quercus chrysolepis*), a manzanita (*Arctostaphylos patula*), and *Rhamnus tomentella*. This gives way at about 6000 feet on north slopes and 7000 feet on south slopes to open park-like forest, composed largely of the Jeffrey pine (*Pinus jeffreyi*). A good many yellow pines (*Pinus ponderosa*) occur on the lower slopes, often extending along water courses far down into the piñon belt; also many trees which seem to be variously intermediate in characters between *jeffreyi* and *ponderosa*. In Seymour Cañon are a few sugar pines (*Pinus lambertiana*). And at the summit of the main ridge are several wind-beaten pines identified from cones and staminate flowers by Miss Eastwood as the fox-tail pine (*Pinus aristata*). A few of the same species in more symmetrical growth occur on the north side down among the firs. The steep north slope, from the summit down about 2000 feet, is quite heavily timbered with California white fir (*Abies concolor lowiana*). The upper slopes on the south and east, which are gentle, are not heavily timbered, the groups of Jeffrey pines being interspersed with openings, either bare or brushy. In places above 8000 feet there are extensive low thickets of *Symphoricarpus canescens* Eastwood, and, especially in moist spots, masses of gooseberry (*Ribes cereum* and *R. lacustre*, the latter more particularly on the shaded north side near springs).

In the most exposed places, especially on the west and south sides above 8000 feet, extremely dense mats of a dwarf lilac (*Ceanothus cordulatus*), two feet deep or so, practically prohibit progress through them. Acres of a low composite shrub (*Chrysothamnus tortifolius*) cover the otherwise bare rolling area about the summit.

It is obvious, from a consideration of the most conspicuous plants in conjunction with the animal life studied, that three life zones may be here conveniently recognized:—The Upper Sonoran, characterized by the piñon and sage; the Lower Transition, characterized by the Jeffrey pine; and the Upper Transition, characterized by the white fir. The boundaries are in some places remarkably abrupt; in others a broad interval of intermingling marks the mergence of zones. Some of the birds ranged through two of the zones; and a very few, the Parkman Wren, Lazuli Bunting and Sparrow Hawk, for instance, occurred through all three. And then there were many species which separately characterized each of the zones. Birds typical of Upper Sonoran were: Southern Wren-tit, Pasadena Thrasher, California Bush-tit, San Diego Wren, Brewer Sparrow, Black-chinned Sparrow, Western Gnatcatcher, Swainson Hawk, etc. Birds characteristic of Lower Transition were: Pygmy Nuthatch, Cassin Purple Finch, Audubon Warbler, Black-throated Gray Warbler, Western Chipping Sparrow, Mountain Chickadee, etc. Birds of Upper Transition were: Sierra Grouse, Stephens Fox Sparrow, Green-tailed Towhee, Band-tailed Pigeon, Clark Nutcracker, etc.

In the annotated list which follows, special attention is paid to the zonal distribution of each of the birds enumerated. I have to thank Miss Alice Eastwood, of the California Academy of Sciences, for naming for me the plants mentioned.

1. *Oreortyx pictus plumiferus* (Gould). MOUNTAIN PARTRIDGE.—Mountain Quail were plentiful from 5500 feet elevation to the summit, and many broods of young were met with, particularly around the cienegas. Almost every one of the grassy pockets in the north slope of Mount Pinos held its family of quail. On the approach of an intruder these would flutter into the adjacent gooseberry thickets, where they would remain completely lost to observation for the time being.

2. *Lophortyx californicus vallicolus* (Ridgway). VALLEY PARTRIDGE.

—Around Seymour Creek Meadow, at about 5500 feet elevation, a few, not more than a dozen, Valley Quail had their rendezvous. The species was seen at only one other place in the region, in a small valley on the south-east flank of Mount Pinos, at nearly 8500 feet. Here among the pines, in company with the prevailing Transition birds, a small band of Valley Quail was met with once, July 11. They were in some *Symphoricarpus* brush by a little cienega where Mountain Quail were often seen.

3. *Dendragapus obscurus sierræ* Chapman. SIERRA GROUSE. — We were told of the frequent capture of grouse in the pines down even as low as the sawmill. But this had been in winter when the snow makes it easier to see them. We saw grouse signs only among the firs on the north side. There in dry loose soil under drooping fir branches were dust-wallows and characteristic feathers. There must have been quite a number around though we actually saw but two, an old female with a half-grown young one. These were perched on fir boughs, and when approached the old bird kept clucking loudly until the youngster took flight, when both would swing down the mountain side into the dense woods out of sight. This constitutes the southernmost record-station for the Sierra Grouse.

4. *Columba fasciata* Say. BAND-TAILED PIGEON. — We estimated that fully twenty pairs of pigeons were at home about the summit of Mount Pinos. During the day they were evidently feeding mainly in the Jeffrey pines on the south side of the mountain. For at night just at dusk, they would come flying over the peak, singly and in small parties, alighting down among the dense firs on the north slope. Their deep monotonous *coo'-coo*, *coo'-coo*, *coo'-oo*, or *tuck-oo'*, *tuck-oo'* was a frequent sound at this place, and I have no doubt the birds had nests in the vicinity, though we saw no young. The crop of the single pigeon shot contained nothing but pine seeds.

5. *Zenaidura macroura* (Linnaeus). MOURNING DOVE. — Doves were frequently seen below 6500 feet, mostly about watering places, which they visited, as usual, in pairs.

6. *Gymnogyps californianus* (Shaw & Nodder). CALIFORNIA VULTURE. — The ranchers and stockmen interviewed said that Condors were of common occurrence in the vicinity. I saw a single individual twice flying over the summit of Mount Pinos. The conspicuous white patches on the under side of the wings render this bird the easiest of any of our larger species to identify in full flight at any considerable distance.

7. *Cathartes aura* (Linnaeus). TURKEY VULTURE. — Just one Turkey Buzzard was seen anywhere in the region. This bird was flying over Seymour meadow, 5500 feet.

8. *Accipiter cooperi* (Bonaparte). COOPER HAWK. — Seen but twice, on the mountain sides among the Jeffrey pines.

9. *Buteo borealis calurus* (Cassin). WESTERN RED-TAIL. — A single Red-tail was seen circling above Mount Pinos.

10. *Buteo swainsoni* Bonaparte. SWAINSON HAWK. — A pair of this

species with two nearly full-grown young lived in the neighborhood of Seymour Creek meadow, 5500 feet. Here they obtained an easy livelihood from the swarms of grasshoppers. Besides these, the stomach of one of the hawks shot, contained a nearly entire chipmunk (*Eutamias merriami*).

11. *Aquila chrysaëtos* (Linnaeus). GOLDEN EAGLE. — A pair or more were seen repeatedly about the summit of Mount Pinos.

12. *Falco mexicanus* Schlegel. PRAIRIE FALCON. — A single adult male specimen of the Prairie Falcon was shot by Dixon on July 4 at about 8000 feet elevation, among the Jeffrey pines. The stomach contained portions of a young Mountain Quail.

13. *Falco sparverius* Linnaeus. AMERICAN SPARROW HAWK. — Sparrow Hawks were but sparingly represented in the region, and noted only below 8000 feet.

14. *Nyctalops wilsonianus* (Lesson). AMERICAN LONG-EARED OWL. — I shot an adult male Long-eared Owl below the Columbus Borax Mine, 5000 feet, in the evening of June 25. Owls were apparently very scarce in the Mount Pinos country. We heard them at night only in one place, Seymour Cañon. The notes were unfamiliar and we concluded they might have emanated from a Spotted Owl.

15. *Dryobates villosus hyloscopus* (Cabanis). CABANIS WOODPECKER. — This woodpecker proved to be fairly common all over the mountain above 6000 feet. Full-grown young were noted June 28.

16. *Dryobates nuttalli* (Gambel). NUTTALL WOODPECKER. — A juvenile was secured in Seymour Cañon at 6500 feet on July 13; and another individual was heard on a subsequent day among golden oaks further down, at about 5500 feet.

17. *Xenopicus albolarvatus gravirostris* (Grinnell). SOUTHERN WHITE-HEADED WOODPECKER. — The White-headed Woodpecker was moderately common among the firs on the north side near the summit, while a few were met with in the Jeffrey pine belt down to 6500 feet. Both adults and young were secured. Dixon saw the species also on Frazier Mountain, 15 miles east of Mount Pinos. The specimens secured average nearest the large-billed race, *gravirostris*. The bills, however, which furnish the main distinguishing character, are slightly smaller than in the case of the San Gabriel birds. This lends evidence of intergradation with *albolarvatus*. Hence I employ the trinomial form of name.

18. *Colaptes cafer collaris* (Vigors). RED-SHAFTED FLICKER. — A few flickers, some of them juveniles, were encountered in the Jeffrey pine belt from 6500 feet to the summit.

19. *Phalænoptilus nuttalli californicus* Ridgway. DUSKY POOR-WILL. — The mellow notes of the Poor-will were heard regularly morning and evening in Seymour Cañon, 6000–6500 feet; and also one evening on the very summit of Mount Pinos, 8826 feet.

20. *Aëronautes melanoleucus* (Baird). WHITE-THROATED SWIFT. — On July 9 several White-throated Swifts were seen flying about the summit of Mount Pinos.

21. *Calypte anna* (Lesson). ANNA HUMMINGBIRD. — Several were noted about Seymour Meadow, 5500 feet, July 13-16.

22. *Selasphorus alleni* Henshaw. ALLEN HUMMINGBIRD. — Around our camp in Seymour Cañon, 6500 feet, this species was first seen on July 1, and shortly thereafter became notably common. At first only adult males were seen, but within a few days females and juveniles made their appearance. Masses of monkey flowers (*Mimulus langsdorfi* and *cardinalis*), columbines (*Aquilegia* sp.?) and other plants (*Stachys albens*, *Castilleja grinnelli*, etc.) began to burst into bloom during the first week in July about the wet places in the cañon bottoms. And these flower masses were the scenes of many noisy revels among the Allen Hummers, sometimes as many as five of the birds taking part in what looked like a free-for-all fight. I do not believe this species of hummingbird bred anywhere in the region, as they made their appearance after the close of the usual nesting period. It seems probable that they had immigrated from the coast belt to the west and northwest where the species is known to nest.

23. *Stellula calliope* (Gould). CALLIOPE HUMMINGBIRD. — This, our most diminutive species of hummingbird, proved to be fairly common on Mount Pinos above 6500 feet, being practically confined to the Jeffrey pine belt. The little meadows between 7500 feet and 8500 feet, grown up to blue flags (*Iris missouriensis*), seemed to be the favorite resort. Only juveniles and adult females were taken. Not a single male Calliope Hummingbird was seen. These had probably emigrated immediately after the nesting season, as is the habit of male hummers generally, leaving the females to bring up the young.

24. *Tyrannus verticalis* Say. WESTERN KINGBIRD. — At Seymour Meadow, 5500 feet, a pair of kingbirds had their nest on a lower horizontal branch of a yellow pine, 35 feet up. The young left the nest on July 12, the whole family finding a plentiful food-supply in the hordes of grasshoppers which infested the meadow.

25. *Myiarchus cinerascens cinerascens* (Lawrence). ASH-THROATED FLYCATCHER. — A pair was seen in Seymour Cañon, 6000-6500 feet, and one or two more were met with at the meadow, 5500 feet.

26. *Sayornis saya* (Bonaparte). SAY PHŒBE. — A family of Say Phœbes, adults and three young, made their appearance June 30 at Seymour Meadow, 5500 feet. They had undoubtedly nested somewhere in the near neighborhood.

27. *Nuttallornis borealis* (Swainson). OLIVE-SIDED FLYCATCHER. — The Olive-sided Flycatcher was relatively numerous all over the mountain above 6500 feet. The weird call-notes, so familiar to frequenters of our California sierras, are to me the most impressive of mountain bird-voices.

28. *Contopus richardsoni richardsoni* (Swainson). WESTERN WOOD PEWEE. — This species occurred sparingly through the Jeffrey pine belt from 6500 feet to the summit. In Seymour Cañon, a nest was noticed high up on a horizontal pine branch.

29. *Cyanocitta stelleri frontalis* (Ridgway). BLUE-FRONTED JAY. — Blue-fronted Jays were moderately common all over the mountain above 6000 feet. Adults and full-grown young, as is usually the case, gathered about our camp in Seymour Cañon, quietly pilfering whatever they took a notion to, including our soap. The specimens secured are typical of the Sierran form, showing no tendency whatever toward *carbonacea* of the coast belt further north.

30. *Aphelocoma californica californica* (Vigors). CALIFORNIA JAY. — This jay was a characteristic bird of the piñon belt, below 6000 feet. Above this it was not seen excepting once: In a little valley at nearly 8500 feet, on the southeast exposure of the mountain, several California Jays were noted on July 11.

31. *Nucifraga columbiana* (Wilson). CLARK NUTCRACKER. — Adults and full-grown young were abundant about the summit of Mount Pinos, particularly in the fir belt. Below this they were occasionally seen down to 6500 feet, and several were met with even in the piñons at 5500 feet. Nutcrackers were by far the most conspicuous of the mountain birds, both on account of their penetrating voices, and on account of their strikingly contrasted black and white wing-markings, which render the birds in flight plainly seen against most any background.

32. *Sturnella neglecta* Audubon. WESTERN MEADOWLARK. — A family of adults and nearly full-fledged young had their headquarters at Seymour Meadow, 5500 feet.

33. *Icterus bullocki* (Swainson). BULLOCK ORIOLE. — Several adults and young were noted in the golden oaks and rose thickets about Seymour Meadow, 5500 feet.

34. *Euphagus cyanocephalus* (Wagler). BREWER BLACKBIRD. — A small flock was seen several times at Seymour Meadow, 5500 feet, where they were voraciously feeding on grasshoppers.

35. *Carpodacus cassinii* Baird. CASSIN PURPLE FINCH. — The Cassin Purple Finch was present in numbers all over the mountain, from 6500 feet in Seymour Cañon to the summit. The birds were particularly noticeable in the Jeffrey pine woods at 7000–8000 feet elevation. Here they were to be seen feeding on the ground in pairs or small companies, which would take to the lofty tree-tops when disturbed. Half-fledged young were noted on June 29.

36. *Carpodacus mexicanus frontalis* (Say). HOUSE FINCH. — A very few linnets were in constant attendance at Seymour Meadow, 5500 feet. Much to our surprise, on July 11, we encountered a large flock of House Finches, both old and full-grown young, in a small valley on the southeast side of the mountain at nearly 8500 feet. These we concluded had wandered up since the nesting season from a much lower altitude.

37. *Loxia curvirostra bendirei* Ridgway. SIERRA CROSSBILL. — I several times thought I saw crossbills among the taller tree-tops. But the close similarity in general appearance and behavior at a distance to the Cassin Purple Finch, rendered identification uncertain in all cases but

one. On the 6th of July I shot an adult pair of crossbills from a pine near the summit of Mount Pinos. The male is in full feather, having nearly the entire body plumage orange-vermilion. The two birds measure in millimeters as follows:—♂, wing, 97; tail, 65; culmen, 19; depth of bill, 10. ♀, wing, 93; tail, 64; culmen, 19; depth of bill, 10. The gullet of one of the birds contained 13, mostly whole, shelled, Jeffrey pine seeds. This is the southernmost summer record of the crossbill in California. In fact I can find but one other record of its occurrence so far south at any season, that by Daggett of its presence at Pasadena in December, 1898.

38. *Astragalinus psaltria hesperophilus* *Oberholser*. GREEN-BACKED GOLDFINCH.—A single pair was seen for several days at our camp in Seymour Cañon, 6500 feet.

39. *Astragalinus lawrencei* (*Cassin*). LAWRENCE GOLDFINCH.—The Lawrence Goldfinch was fairly common above 6500 feet on Mount Pinos. Adults and full-grown young were frequently seen about springs among the firs on the north slope near the summit. A pair or so were also met with on the lower Seymour Creek at 5500 feet.

40. *Spinus pinus pinus* (*Wilson*). PINE SISKIN.—Siskins were common from the lower edge of the Jeffrey pine belt, say 6000 feet, to the summit. Many daily visited the trickles of water in Seymour Cañon near our base camp. And among the firs on the north side near the summit full-grown young with their parents were of frequent note.

41. *Chondestes grammacus strigatus* (*Swainson*). WESTERN LARK SPARROW.—The Western Lark Sparrow was a fairly common species of the open valleys of the region. There were several pairs about Seymour Creek Meadow, and a nest was found there on June 28, containing three fresh eggs. It was on the ground, sunk into a bunch of grass under a sage bush. A surprise came to us when we later encountered several Lark Sparrows in the open places on the very summit of Mount Pinos, 8800 feet. As with the Sage Sparrows found there at the same time, we concluded that they had wandered up the mountain after nesting at a lower level.

42. *Spizella socialis arizonæ* *Cones*. WESTERN CHIPPING SPARROW.—The Western Chipping Sparrow proved to be a fairly common bird of the pine woods from 6500 feet to the summit. It is not a brush-loving bird, being most often seen on the forest floor, feeding among the fallen needles, or at the edges of the grassy cienegas, often in company with juncos.

43. *Spizella breweri* *Cassin*. BREWER SPARROW.—The Brewer Sparrow was a characteristic species of the sage valleys of the region. It was first met with as we approached Mount Pinos through Cuddy Cañon, at about 4500 feet elevation, and was not seen above 6000 feet in any place. On the sage flat above Seymour Creek Meadow the species was numerous. Full-grown young were taken June 26, and on June 28 several nests were found located from 1½ to 3 feet above the ground in sage bushes

(*Artemisia* and *Chrysothamnus*). One nest contained three eggs and one newly-hatched young, and another held two eggs and one young. Most of the nests were by this time vacant. In structure the nests of the Brewer Sparrow very closely resemble those of the Chipping Sparrow, as might be expected from the close similarity between the birds themselves. It is worthy of remark that in no place in this region did the local ranges of these two species overlap.

44. *Spizella atrogularis Cabanis*. BLACK-CHINNED SPARROW.—The Black-chinned Sparrow was also an inhabitant exclusively of the sage belt, along with the Brewer and California Sage Sparrows, but in not nearly so large numbers as the latter two species. In the vicinity of Seymour Creek Meadow, between 5500 and 6000 feet, there were perhaps but half a dozen, as the same individuals were probably seen and heard repeatedly. We were fortunate enough to run across a nest of the Black-chinned Sparrow, June 28. This was a very flimsy affair, lacking the neat internal appearance and general compactness for which the nests of the Chipping Sparrow are notable. It was built among the slanting twigs of a sage bush, 2 feet above the ground, and contained two small young.

45. *Junco hyemalis thurberi Anthony*. SIERRA JUNCO.—Juncos were numerous from 7000 feet to the summit, and full-grown young were seen soon after our arrival. The birds showed evident preference for the small springy meadows, especially those on the north side of Mount Pinos, where the steep slopes and dense firs contributed to maintain a cool shade. On the sunny side and at lower altitudes parents and young were to be met with feeding on the ground among bushes, often in company with Chipping Sparrows and Bluebirds. On the north side, below the spring nearest the summit, I found two nests, July 11. These were both discovered while I was setting a line of mouse traps along the little stream, and both were so artfully concealed that the most careful direct search would have failed, had I not almost trodden upon the sitting birds, which thereupon flew out from under my feet. The nests were in each case sunk into the sod, so that the rims were flush with the surrounding surface, and overhung by prickly goose-berry bushes. Each contained three eggs, incubated but slightly.

46. *Amphispiza belli canescens Grinnell*. CALIFORNIA SAGE SPARROW.—The California Sage Sparrow was an abundant bird in the valleys of the region, occurring coëxtensively with the sage-brush (*Artemisia tridentata* and *Chrysothamnus mohavensis*). Juveniles were nearly all full-fledged by the last of June. I was surprised to find several bands of full-grown young among the gooseberry bushes (*Ribes cereum*) on the very summits of both Mount Pinos and Sawmill Mountain. These may possibly have been reared there, but I think more probably had recently wandered up from the sage slopes which in places stretch up to fully 6500 feet on the south sides of the mountains. The nine specimens preserved struck me at once as differing from the Bell Sparrow of the coast region

of California. Upon gathering together series of *Amphispiza*, I became convinced of the advisability of proposing the recognition of a new race represented by the Mount Pinos skins. This was done in 'The Condor' for January, 1905, page 18.

47. *Passerella stephensi* (Anthony). STEPHENS FOX SPARROW.—The Stephens Fox Sparrow proved to be fairly numerous on Mount Pinos and its westward spur, Sawmill Mountain, but strictly above 8000 feet. In the relatively rank growth of gooseberry bushes and other vegetation about springs and swales, particularly on the shaded north side among the firs, fox sparrows kept their presence known by frequent repetition of their loud ringing song, to me the most pleasing of mountain bird voices. Thirteen specimens of *Passerella* were secured on Mount Pinos. Two of these were full-grown juveniles taken July 11, and another, a half-grown fledgling, was taken on June 29. The remaining ten adults measure in millimeters as follows:—

No., Coll. J. G.	Sex.	Wing.	Tail.	Cul- men.	Bill from Nostril.	Ramus of Lower Mandible from lateral base to tip.	Width of Bill at base of Low- er Mandible.
5818	♂	86	93	15	11.7	17	12.7
5897	♂	84	93	14	10.5	15.2	12
5891	♂	85	94	13.7	10.2	15.2	12.9
5896	♂	86	96	15.7	11.5	16.5	12.5
5895	♂	83	90	14	11	15.5	13
5819	♂	86.5	98	16.2	12	17	13
5817	♂	84	93	15.5	11.7	16	12.9
Average	7♂s	85	94	15	11.2	16.1	12.7
5894	♀	78.5	87	14	10.2	16.5	12.7
5816	♀	80.5	89	15	11.5	16.2	12
5892	♀	79	86.5	14.5	11	16	12
Average	3♀s	79.3	87.5	14.5	10.9	16.2	12.2

The above measurements show the fox sparrows from Mount Pinos to be in no respects smaller than those from the San Gabriel and San Bernardino Mountains to the southward. In fact one extreme (No. 5819) has a slightly larger bill than the largest examined from the other localities. The tremendously enlarged bill of *stephensi* is characteristic, and separates it readily from its nearest relative *megarhyncha* of the central Sierra Nevada. Among numerous specimens of both forms, I see no intergradation by way of individual variation; and it is quite certain that there is a broad geographical hiatus between Mount Pinos and the nearest favorable region of the Sierras. Of course it is possible that intermediate examples will be forthcoming from the southern Sierra Nevada when these mountains are explored. But with the present available material, by every criterion (except personal "feeling"!) *stephensi* should

be considered a distinct species with binomial appellation. The present record places a known breeding locality of *stephensi* some seventy miles northwest of its previously northernmost known station, Mount Waterman. And I know of no probable breeding place between, for the fox sparrow is a bird of extreme upper transition and boreal. The only other possibly favorable locality, Frazier Mountain, near Tejon Pass, was visited by Dixon, who went to its summit on July 18, without noting any fox sparrows. Although over 8000 feet high it is too dry and too near the influence of the hot interior plateau. The breeding records so far for the Stephens Fox Sparrow indicate a very spotty range, viz.:—a very limited area on San Jacinto Peak, a rather more extensive region on the San Bernardino Mountains, a very limited tract along the highest ridges of the San Gabriel Mountains, and the very small area on Mount Pinos.

48. *Pipilo maculatus megalonyx* (Baird). SPURRED TOWHEE.—Spurred Towhees were observed only below 6500 feet. They were sparingly represented along Seymour Cañon where young were taken near our base camp by June 27.

49. *Oreospiza chlorura* (Audubon). GREEN-TAILED TOWHEE.—Green-tailed Towhees were common on Mount Pinos in much the same surroundings as chosen by the Stephens Fox Sparrow; but the former were noted a little lower, down to about 7500 feet on the east side of the mountain. In the clumps of gooseberry, *Ceanothus* and *Symphoricarpus* brush, the Green-tailed Towhees were to be heard and seen plentifully. Full-grown young were taken by July 11. This species was also discovered on Frazier Mountain, 15 miles east of Mount Pinos.

50. *Zamelodia melanocephala capitalis* (Baird). BLACK-HEADED GROSBEEK.—Not common; single individuals were met with in several places about the mountain, even on the very summit where one was heard singing violently from a dense fir tree late one evening.

51. *Cyanospiza amoena* (Say). LAZULI BUNTING.—At Seymour Creek Meadow, about the thickets of rose-bushes and willows, Lazuli Buntings were notably plentiful. A few were also observed in the cañons further up the mountain; and even about the cienegas as high as 8000 feet, where gooseberry and *Symphoricarpus* thickets furnished cover, the song of this bird was often to be heard.

52. *Piranga ludoviciana* (Wilson). WESTERN Tanager.—Tanagers were met with chiefly in the cañons among the golden oaks, from 6000 to 6500 feet elevation. One pair was seen in the fir zone on the north slope near the summit.

53. *Progne subis hesperia* Brewster. WESTERN MARTIN.—Only noted once: three were seen flying about over the summit of Mount Pinos on June 29.

54. *Petrochelidon lunifrons lunifrons* (Say). CLIFF SWALLOW.—A few, mostly birds-of-the-year, were seen flying about in company with Violet-green Swallows over Seymour Meadow, 5500 feet, July 15.

55. *Tachycineta thalassina lepida* (Mearns). VIOLET-GREEN SWAL-

LOW.—Violet-green Swallows were abundant all over the mountain, though apparently nesting only in the Jeffrey pine belt. On moonlight nights they twittered almost incessantly all night long, at least whenever we happened to be awake. They would be seen flying about, with the last faint light of evening, and again at dawn. Judging from the directions of their voices, we supposed the swallows to take flight in companies, at intervals as the twittering augmented, fly about overhead awhile, and then settle down for a quiet spell, only to repeat the manœuvre.

56. *Vireo solitarius cassini* (*Xantus*). CASSIN VIREO.—This was the only species of vireo met with in the region. A single pair of the Cassin Vireo was evidently nesting somewhere near our camp at 6500 feet in Seymour Cañon. The male bird sang at morning and evening from a thicket of golden oaks nearby.

57. *Dendroica auduboni auduboni* (*Townsend*). AUDUBON WARBLER.—Audubon Warblers were common in the Jeffrey pine belt from 6500 feet to the summit. They were seen feeding nearly full-fledged young by June 28.

58. *Dendroica nigrescens* (*Townsend*). BLACK-THROATED GRAY WARBLER.—This species was noted from 5500 feet to the summit, but was best represented, numerically, in the golden oaks of the cañons between 6000 and 7000 feet altitude.

59. *Toxostoma redivivum pasadenense* (*Grinnell*). PASADENA THRASHER.—The Pasadena Thrasher was but sparsely represented in the region. It was detected only in the brush belt below 5500 feet down toward Lockwood Valley. The two specimens secured fully warrant the above subspecific determination.

60. *Salpinctes obsoletus obsoletus* (*Say*). ROCK WREN.—We found a family of Rock Wrens, adults and full-grown young, among the boulders on the very summit of Mount Pinos.

61. *Catherpes mexicanus punctulatus* *Ridgway*. DOTTED CAÑON WREN.—A single family of Cañon Wrens in Seymour Creek Cañon, between 6500 and 7000 feet altitude were the only representatives of the species met with.

62. *Thryomanes bewicki charienturus* *Oberholser*. SAN DIEGO WREN.—This form of the Bewick Wren was fairly common in the brush below 6000 feet. The single specimen preserved, an adult female, is in such worn plumage as to preclude positive subspecific identification. But a careful comparison with skins in corresponding plumage leads me to refer it to *charienturus* of the San Diego district, rather than to *drymæus* of the San Joaquin-Sacramento region.

63. *Troglodytes ædon parkmani* (*Audubon*). PARKMAN WREN.—This wren seems to be quite indifferent to altitude. A few were nesting among the white firs on the north side near the summit, while a family of young were found at 5500 feet near the Borax Mine. However, Parkman Wrens did not prove even ordinarily common anywhere about the mountain.

64. *Certhia americana zelotes* (Osgood). SIERRA CREEPER.— Creepers were in evidence in moderate numbers among the pines and firs from 7000 feet to the summit. The specimens obtained show the Mount Pinos bird to be unquestionably referable to the Sierran form, *zelotes*, and not to the race, *occidentalis*, which occurs near the coast of southern Monterey County, 175 miles to the northwestward.

65. *Sitta carolinensis aculeata* (Cassin). SLENDER-BILLED NUTHATCH.— Above the 6000 foot contour level this nuthatch was locally numerous. In the golden oaks of Seymour Cañon it was about the commonest bird. But elsewhere it was found notably numerous only in a small part of the fir woods on the north slope near the summit.

66. *Sitta pygmæa pygmæa* (Vigors). PYGMY NUTHATCH.— Very common in the Jeffrey pine belt, and apparently exclusively confined to it. From 6000 feet to the summit on the south exposure, Pygmy Nuthatches were to be heard or seen almost constantly. Young were plentiful from the date of our arrival.

67. *Bæolophus inornatus inornatus* (Gambel). PLAIN TITMOUSE.— Titmouses were occasionally observed in the brush and golden oaks below 6500 feet.

68. *Parus gambeli* Ridgway. MOUNTAIN CHICKADEE.— Very common all over the mountain above 6000 feet. Most numerous in the Jeffrey pine belt.

69. *Chamæa fasciata fasciata* (Gambel). SOUTHERN WREN-TIT.— A pair were seen in a manzanita thicket in Seymour Cañon at 6500 feet, but none higher. In the brush belt at 5500 feet and lower, the species was sparingly represented. The two adults secured belong to the same race as specimens from the vicinity of Los Angeles.

70. *Psaltiriparus minimus minimus* (Townsend).—CALIFORNIA BUSH-TIT.— Flocks of bush-tits were frequent in the golden oaks and brush below 6500 feet.

71. *Polioptila cærulea obscura* Ridgway. WESTERN GNATCATCHER.— A very few were noted in company with bush-tits at 5500 feet below Seymour Creek Meadow.

72. *Merula migratoria propinqua* (Ridgway). WESTERN ROBIN.— Robins were present in relatively small numbers only, and were confined to the upper parts of the mountain, above 8000 feet. Perhaps 20 individuals were seen altogether, some feeding on the ground about moist cienegas, others singing from lofty perches at the tips of pines. No nests or young were discovered; but the robins were surely breeding, for the ovary of a female secured contained a fully formed yolk.

73. *Sialia mexicana occidentalis* (Townsend). WESTERN BLUEBIRD.— Bluebirds were abundant all over Mount Pinos, even down into the piñon belt. In favorable spots, such as damp meadows, young and adults were congregated into companies, quiet, but effective in putting great numbers of larval grasshoppers out of sight.